National Institutes of Health

Fact Sheet — *Stroke*

Fifty Years Ago

- Until the 1950s, little was known about stroke and virtually nothing could be done for stroke victims.
- Death from stroke was 4 times what it is today.
- By 1960, the incidence and mortality from stroke began to gradually decline as treatable risk factors such as hypertension, were identified.
- During the 1970s, significant advances including computer tomography for early diagnosis of ischemic or hemorrhagic stroke, the demonstration of the effectiveness of aspirin for treatment, assessment of brain metabolism using Position Emission Tomography (PET) scanning and a significant decline in stroke mortality through management of risk factors.

Today

- Fewer people are dying of stroke today—age-adjusted stroke mortality rate has decreased 70 percent since 1950, and has decreased 64 percent since 1972.
- 5.5 million people in the United States have survived a stroke but live with its impact every day.
- In 1995, an NIH-funded clinical trial established the first (and only) FDA-approved treatment for acute ischemic stroke treatment. The drug tPA (tissue plasminogen activator), is currently given within 3 hours of stroke symptoms, reduces the risk of additional hemorrhage, and maximizes the potential for patient recovery.
- A recent analysis of data from more than 2,700 stroke patients in both the United States and Europe has confirmed tPA's effectiveness, which can provide considerable cost savings—nearly $50 million a year in the United States alone.
- NIH-funded clinical trials have established guidelines that match effectiveness of therapies with specific risk factors-identifying optimal therapies for stroke patients, which include surgery and administration of aspirin and warfarin.

Tomorrow

- A major objective is the control of blood pressure. The assessment of specific antihypertensive therapies will result in the identification of specific treatments to lower blood pressure and *preempt* primary and secondary stroke.
- NIH clinical trials will continue to move toward *personalized* treatment as clinicians and surgeons are educated on how to select patients for effective surgeries—such as carotid endarterectomy—and to avoid risky and ineffective procedures, such as extracranial/intracranial (EC/IC) bypass.
- New approaches are under development to reduce ischemic stroke damage and include several categories of new drugs aimed at different damaging events. One approach is to neutralize potent vasoconstrictors that are formed after ischemic stroke and prolong ischemic injury.
- Antioxidants are also under development to reduce oxidative damage. Uric acid has been shown to protect the brain in a model of ischemia in rats. The protective effect of uric acid was even greater when combined with tPA.